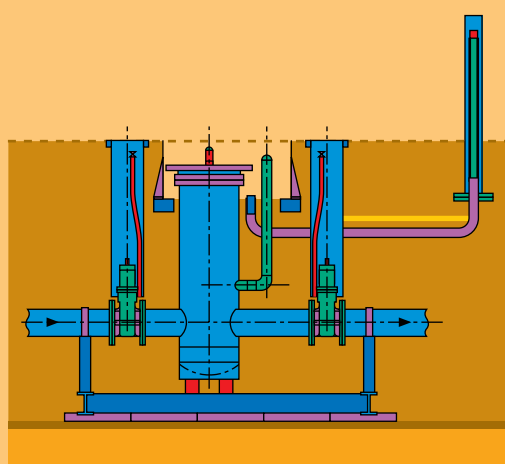


## ORPHEUS : *The Invisible Attraction*

In July 1998, the first underground pressure regulating station in Tianjin China was installed. ORPHEUS, the new concept for gas transmission and distribution station, developed by International Gas Apparatus (IGA) UK, has opened a new era in China. On November 26, 1999, the ORPHEUS was successfully commissioned and started the gas supply to all residential apartments in the community.



The Orpheus Cartridge Assembly



ORPHEUS fully submerged

This Series 10 ORPHEUS is a completely self-contained single stream Pressure Regulating Module comprising : inlet / outlet isolation valves, integral filters, overpressure shut-off device, 2" monitor & active axial flow valves, creep relief, and type 1203 low pressure application pilots.

### The operation parameters of this buried ORPHEUS :

Inlet Pressure :	0.03 MPa – 0.09 MPa
Outlet Pressure :	2400 Pa
Flow Capacity :	600 Sm <sup>3</sup> /h (serving 2400 homes)
Inlet / Outlet Connection :	4" PN16

The ORPHEUS has now been in operation for more than 8 months. Despite several severe conditions like a sudden drop in inlet pressure to 0.02 Mpa, low ambient temperatures of -20 degree centigrade during the winter of 1999 and the unit being fully submerged in water during heavy rainfalls, the ORPHEUS has shown great performance. The pressure recorder installed downstream from the ORPHEUS indicated that the outlet pressure stays at 2300 Pa at the peak hour of the day, 2400 Pa during normal conditions and 2500 Pa at midnight. This records the accuracy of the unit within +/- 4%. Also, the tested lock-up pressure of the unit was found to be lower than 1.2 times the outlet set pressure.

WANG HONG / TAN KONG CHIEW,  
ELSTER-AMCO BEIJING

The Orpheus during installation



The series 4 orpheus covers

While visiting the site, you can hardly notice the presence of the ORPHEUS unit from a distance. The installation of this unit is hidden in the center of the lawn and there is no impact on appearance. You would not notice that the nice flagpole is the vent stack for the relief and breathing holes of the pilots. Below the base of the flagpole, you can find a pressure recorder and pressure gauges monitoring the pressure profiles of the unit.

**The customer is very happy with the ORPHEUS unit because :**

**1. It has saved space tremendously**

If a traditional above-ground station was installed, it would occupy an area of 300 square meters (considering safety distance away from the station) while this unit only takes up 10 square meters of space.

**2. It is quiet**

You can hardly hear noise from this buried unit. (The unit has an operating noise as low as < 60 dBA.)

**3. No fear of gas leakage**

as the unit is designed and fabricated to Pressure Vessel Standards. The design of this unit makes it different from others' so-called underground stations which have potential leakage areas at all mating flanges between components inside the containers.

**4. The customer has great cost savings**

As the unit is buried, the customer does not need to spend extra money on housings, gas heating equipment and associated maintenance expenses.

The above success has aroused great attention locally and nationwide. Local newspapers like Tonight, Tianjin Daily, Tianjin Youth have repeatedly reported the great influence of this revolutionary concept in gas transmission and distribution installation. The local government has organized a news release conference with 100 attendees from cities all over China. The site has now become a special scenery spot attracting interested customers from all over.

After the visit to the ORPHEUS installation site in Tianjin, several gas companies have shown great interest – Jiannian Natural Gas Company has selected ORPHEUS instead of other competitors' underground modules, Tianjin Gas Group has placed a trial order of ORPHEUS, and others are interested in other models of the ORPHEUS series :

- **Series 20 ORPHEUS**  
for medium pressure reduction systems (maximum inlet pressure of 19 bar and flow capacities up to 200,000 m<sup>3</sup>/h)
- **Series 4 ORPHEUS**  
for low pressure distribution systems (maximum inlet pressure of 4 bar and flow capacities up to 1,600 m<sup>3</sup>/h).

ORPHEUS has now become the invisible attraction in the gas industry in China. It offers a unique, cost-efficient solution to the challenge of replacing existing district pressure reduction stations and installing new stations in the densely populated cities in China and across the world. Designed using standard products well proven in the field, ORPHEUS can be used with confidence and easily maintained.

Nevertheless, IGA has a totally flexible approach in the supply of solutions to its customers. The aim is to provide the highest quality stations tailored to meet the specific needs of the customer and the location. The complete Orpheus range can be installed as single or twin stream with a configuration of monitoring / active regulators and / or over pressure protection. Given the basic performance requirements, full advice and assistance is provided to see how the basic Orpheus range can provide a cost effective and reliable solution.

**One thing for sure, among all other types of underground pressure regulating modules, ORPHEUS, just like its name, is obviously standing out.**